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ABSTRACT

This document presents the findings of a two-year investigation of Interactive Research and Development on Schooling (IR&DS). IR&DS is an alternate means of conducting school-based research and development and an extension of Interactive Research and Development on Teaching (IR&DT). IR&DS is seen as a means to: (1) involve school personnel in systematic inquiry; (2) improve the utility of research findings for the improvement of educational practice; (3) reduce the time lag between knowledge generation and knowledge utilization; (4) strengthen local education agency capability to act upon school problems; (5) coordinate school improvement activities between higher education agencies and local education agencies; (6) generate knowledge about schooling practices; and (7) provide professional growth opportunities to participants in the process. This report describes data collected from Interactive Research & Development teams at three New York sites. Context differences and differences in the process of carrying out IR&DS are described. Chapter 1 provides an introduction to the study and an explanation of differences between IR&DT and IR&DS. Chapter 2 discusses study methods and procedures, and chapter 3 talks about organizational contexts. In chapter 4, the process of IR&DS implementation is outlined in detail. Chapter 5 details small group themes, and the sixth chapter offers outcomes and conclusions. (JMK)

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Research and Development Center for Teacher Education

The University of Texas at Austin

Austin, Texas 78712

INTERACTIVE RESEARCH AND DEVELOPMENT ON SCHOOLING: EXECUTIVE SUMMARY OF THE FINAL REPORT

Gary A. Griffin
Ann Lieberman
Joann Jacullo-Noto

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Gary A. Griffin, Program Director

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Interactive Research and Development on Schooling:
Executive Summary of the Final Report

CHAPTER 1

Introduction

This document presents the findings of a two-year investigation of Interactive Research and Development on Schooling (IR&DS). IR&DS is an alternate means of conducting school-based research and development and is seen as a means to (1) involve school persons in systematic inquiry, (2) improve the utility of research findings for the improvement of educational practice, (3) reduce the time lag between knowledge generation and knowledge utilization, (4) strengthen local education agency capability to act upon school problems, (5) coordinate school improvement activities between higher education agencies and local education agencies, (6) generate knowledge about schooling practices, and (7) provide professional growth opportunities to participants in the process.

Interactive Research and Development on Schooling

IR&DS is an extension of Interactive Research and Development on Teaching (IR&DT) (Tikunoff, Ward, & Griffin, Note 1) which is discussed below. IR&DS is an approach to conducting educational r and d which departs in several distinct ways from typical approaches. First, the r and d is planned and implemented by a team composed of school persons, researchers, and developers. (The term "developer" refers to anyone charged with school improvement or staff development. Thus, a "developer" might be a teacher educator, a principal, a central office official, a staff development specialist, etc.) Second, the school persons are expected to influence the problem identification to a significant degree. This is in marked contrast to the conventional practice of a university-based person having the primary influence upon what research regarding schooling is conducted. Third, the

team members are expected to contribute to the r and d processes according to their professional roles and bodies of expertise. Fourth, the r and d are expected to be interactive. That is, the IR&DS teams are to keep in mind the potential utility of their research for improvement of practice from the beginning of the research process. This contrasts with usual practices which usually depend upon development to be formulated after the research has been conducted. (It has been estimated that this "wait time" between conventional r and d lasts from five to nine years.) Fifth, the products of the teams' work are to be of immediate and practical use to colleagues in their immediate settings and in like settings.

These differences between IR&DS and typical r and d are presented as "features of IR&DT" below.

The present study was designed as a means to test the interactive strategy in a variety of settings. IR&DS modifies and extends what might be called situation-specific problem solving. Rather than study the effects of the strategy in one setting (or in settings which are markedly similar), it was decided to examine the strategy in several very different settings to determine the degree to which it contributes to the improvement of practice regardless of such issues as problem differences, context distinctions, organizational missions, and the like. It was believed important to understand the degree to which such differences impact upon the successful implementation of the strategy and the degree to which the strategy impacts upon the context variables.

Consequently, the IR&DS study examined the implementation processes and products in (1) a typically-organized suburban school district, (2) a teacher union-sponsored teacher center consortium, and (3) an intermediate agency

whose mission is to provide services to a number of participating school districts.

The key term "interactive" is, of course, open to several definitions. It is important to acknowledge that the original use of the word had to do with the relationship of research to development, as noted above. That is, the research and development are planned and conducted concurrently or in overlapping patterns of activity. "Interactive" in the present study also means the relationships between and among the members of the IR&DS teams. Thus, IR&DS is interactive through the mix of persons and the mix of processes (r and d).

Purposes of the Study

The purposes of the study of IR&DS were to:

1. conduct Interactive Research and Development on Schooling in three markedly different settings.
2. determine the degree to which the strategy is appropriate for acting upon a variety of schooling issues.
3. determine the degree to which the findings of the initial implementation of IR&DT (see below) held true when the object of the r and d was altered.
4. determine the degree to which self-reported professional and growth of participants is positive.
5. determine the apparent relation between institutional arrangements and the process/product quality of teams' r and d.
6. determine the degree to which the strategy can be maintained efficiently and effectively with minimal financial and other fiscal resources.
7. determine the degree to which institutional contribution in terms of

human and material resources is related to the success of the strategy.

8. determine the relation of specific context variables and the implementation of the strategy.

It should be acknowledged that the research reported in this document is a systematic inquiry into the implementation of IR&DS. That is, the principal object of the majority of this final report is the combination of processes and products engaged in and formulated by three teams. Another level of research is the research conducted by the three teams. The teams' r and d are reported in other documents.

Antecedents to IR&DS

Ward and Tikunoff (Note 2), in a paper on collaborative research commissioned by the National Institute of Education, provide a useful framework for examining what we, in this report, consider the antecedents of IR&DS. They note four patterns which include (1) school-based collaboration in which school members work together; (2) school district-college/university collaboration on school improvement and problem solving; (3) university-based collaboration with the intent of establishing the receptivity of school persons to the conduct of research in their "home" settings; and (4) Interactive Research and Development on Teaching, a pattern of collaborative activity which accounts for individual and institutional interaction. Each of these patterns has been observed in practice with the most attention from the research community received by the last.

School-based collaboration. This mode is fundamentally different from IR&DS. It focuses upon the school's problems/issues with little attention paid to whether or not solving the problem would help other schools. Also, in school-based collaboration (wherein the collaboration is among members of the

school staff) there has been little evidence of systematic inquiry (i.e., research) with the requisite attributes of the research process (e.g., data collection procedures maintained in an undifferentiated manner, accumulation of data which are then subjected to orderly scrutiny, etc.).

The principal differences between school-based collaboration and IR&DS, then, are that (1) collaboration takes place between members of the immediate school organization rather than among members of different organizations, (2) the problems/issues are school specific and little attention is given to whether the problem solving process or product would apply to another setting, and (3) the problem solving is seldom, if ever, rooted in systematic methods of inquiry.

School district-university collaboration. The main differences between this mode of collaboration and the one discussed immediately above are the unit of examination and the addition of university resources to the collaborative process. As is explicit in the label given the mode, the unit of examination is the district rather than the school. Also, this strategy involves the participation of university persons in interaction with school persons. The usual manifestation of this interaction is when the university person is seen as a consultant who will help in problem solving. Thus, the school system extends its possible resources available to deal with problem solving by adding university-based persons to the problem solving process.

University-based collaboration. In this form of collaboration directionality of process is a critical element. The most conventional manifestation of university-based collaboration is the long-term commitment by members of a university faculty to helping school persons solve their problems. That is, the "expert" from the higher education setting carries a set of process or product answers to questions which arise from the local

education agency. The direction, then, in terms of the problem is from the local setting to the higher education agency and the direction in terms of the solution is reversed.

Although certain purists might disagree with this conclusion, action research (Corey, 1949) conducted during the middle third of this century would fall into this category of collaboration. In action research, it was conventional practice for university professors to move into school settings in an attempt to work with school persons on the problems encountered in the elementary and secondary schools. Typically, these attempts were long-term and characterized by group problem solving techniques. Although action research claimed a fair amount of systematic diagnosis and prescription regarding problem solving, the activities, in retrospect, do not align themselves with widely-held research requisites.

The differences between IR&DS and university-based collaboration include (1) the vesting of "expert" status on the outside university person, (2) the helping (rather than collegial) relation between the university persons and the school persons, (3) the absence of components of disciplined inquiry, and (4) the dependence upon problem alleviation/solution for closure on the relationship.

Interactive Research and Development on Teaching (IR&DT). IR&DT is the precurser of IR&DS. The strategy was proposed by Ward and Tikunoff (1975, Note 3). IR&DT was seen as a means to counter some of the problems which had become associated with linear r and d. (These problems and other issues related to IR&DT, including findings from the original study, are discussed in detail in Tikunoff, Ward, and Griffin, Note 1).

IR&DT can be best understood within the purposes of this brief review by examining the so-called "features" of the strategy. These features are

considered to be essential by the originators of the strategy. Each will be summarized.

1. R and D team composition. The IR&DT teams were composed of three to five teachers, one researcher, and one developer. This composition was designed to ensure that the school practitioner role would be well-represented such that any status influence of the researcher and/or developer could be ameliorated. Further, because the research strategy is designed to act upon school problems, the school-based perspective was expected to dominate the problem-identification phase of the research process. The strategy is <u>not</u> designed to transform teachers (or other school practitioners) into researchers or developers. Therefore, in order to conduct rigorous and useful r and d, it is considered necessary for the team to include persons who have the necessary knowledge and skill related to knowledge production and utilization (researcher and developer). The contribution of the role representatives, then, should inform the r and d processes and products in kind: practitioners use knowledge and skill related to schools and classrooms, researchers contribute their accumulated information and skills to the research phase, and developers keep an eye open to possibilities for school improvement activities. This, it can be seen, is in marked contrast to the less well-defined models of collaboration noted above.

2. The nature of collaboration. A team, whether in athletics or in r and d, depends upon human interactions and decision making for its effectiveness. The nature of collaboration in IR&DT is specified to be working with parity and assuming equal responsibility for the r and d activities to be engaged in. This puts into place a set of norms regarding "who's in charge" which is not typical of hierarchically-organized institutions such as schools. Parity involves sharing of responsibility and

acknowledging needed/given contributions to the processes by team members. In IR&DT it was necessary, also, that persons on the teams assume equal responsibility for what r and d is conducted. It should not be inferred, however, that this equality of responsibility is distributed task by task. It is distributed across the multiplicity of r and d activities. Therefore, the collaboration of IR&DT teams was cumulative rather than point by point. With this definition of collaboration, it is possible to assume that responsibility for certain r and d functions will shift across the time period and across the team. Obviously, then, this form of collaboration depends upon a team norm of mutually recognized, valued, and used knowledge and skill of members.

3. Problem-solving focus. There has been a great deal of concern that conventional educational r and d does not treat effectively persistent school problems and that the treatment of those problems, when it does occur, is not consonant with school persons' views. IR&DT is a strategy which demands a problem orientation. That is, a research issue or question which cannot be verified by school persons as being a school problem could not, by definition, fit into the strategy.

4. Conducting concurrent r and d. As discussed briefly above, an interactive r and d strategy assumes that there is both a time and substance relationship between the research and development. In other words, the research informs the development at or about the same points in time. This is in dramatic contrast to the usual time lag between r and d. (In the original test of the interactive strategy both teams in the study used their research processes as well as their research products in their development activities. This, it seemed to the principal investigators, was unique to the strategy and indicated a strongly interactive relationship between r and d.) Subsequent to the IR&DT study, the issue of concurrency was tempered a bit to include the

notion of overlap with the understanding that it would have been (and continue to be) almost impossible for a team to attend to both at the same time over the entire time period of the study.

5. Maintaining the integrity of the classroom. A basic assumption guided the word of IR&DS: The research procedures should not cause undue influence upon the natural ecology of the settings studied. That is, the settings should not be changed by the research such that they lose their representativeness in relation to other like settings.

6. IR&DT as an intervention strategy. The features above are related directly to issues of research and development. IR&DT, however, was demonstrated to be a powerful intervention upon participants. It is this feature which led the principal investigators of the present study to propose IR&DS as both an r and d strategy and as a staff development vehicle. The IR&DT outcomes indicated that participants changed in professional knowledge and skill, perceptions of possibilities for their own and others' school-related activities, sensitivity to other educational roles, and beliefs in the utility of research for acting upon school problems. These outcomes, combined with literature regarding requisites for change (see, for example, Griffin, 1979), suggested that the interactive strategy could be designed and implemented with r and d outcomes and professional development outcomes as anticipated consequences.

IR&DT and IR&DS: Principal Differences

As was stated above, the present study is an outgrowth of the original implementation of IR&DT. The differences in the two implementations of essentially the same strategy are noted here.

1. Problem-solving focus. IR&DT was focused upon problems and issues related only and directly to teaching. IR&DS teams were urged to consider any

problem or issue in their settings. Because of the team compositions and the contexts from which the practitioner members came, it was assumed that the issues dealt with would move beyond teaching. This, in fact, was the case.

2. Time. The IR&DT study was completed in a fourteen-month period. All members of the original teams expressed the view that this was not enough time to go through the research and development processes with completeness. The IR&DS teams were given twenty-two months to complete their r and d.

3. Team resources. The IR&DT teams were able to draw upon non-school system resources to enact their r and d. The cost attached to these activities for the two teams were $95,517 and $82,753. Because the present study was an attempt to determine how interactive r and d could be a professional development opportunity and a local problem-solving device, it was decided to limit the IR&DS teams' access to external funds in order to keep the strategy within reasonable school system limits. Therefore, IR&DS teams each had only $2,500 for team expenses during year one and $2,000 during year two.

4. Technical assistance. Technical assistance was provided to teams during the course of the implementation of the strategy. In the IR&DT study, this technical assistance was both reactive and proactive. That is, the principal investigators of the study of the process responded to requests for technical assistance but also engaged in technical assistance when it appeared that there were problems regarding research or development in either of the two sites. It is difficult to estimate the degree of influence this technical assistance had because of its bi-directionality. The present study was conducted with no instances of technical assistance (substantive rather than procedural) other than as responses to team or team members' requests.

5. Purpose of the study. The IR&DT study was designed primarily as an alternate mode of conducting school-related r and d, as noted above. The present study attended to this issue but also placed a great deal of emphasis upon the power of the strategy to affect participants. Also, the present study placed a great deal of emphasis upon the contexts of the teams as potential influencers of the strategy.

CHAPTER 2

Methods and Procedures

A number of procedures were used to collect the information needed to understand the degree to which the objectives of this study were attained. Several procedures served to collect a broad range of information while others provided information about a single focus.

The following data collection methods were used to collect information concerning the implementation of IR&DS at each site: (1) audio recording of all team meetings, (2) participant logs, (3) personal contact forms, (4) problem identification questionnaires, (5) baseline interviews, (6) final interview, (7) orientation questionnaires. The data sources were (1) IR&DS team members, (2) team meetings, (3) team member interactions, (4) team-IR&DS study staff interactions, and (5) products of IR&DS team work.

1. Audio recording of team meetings. The three teams met during 22 months of the IR&DT implementation. The audio recordings of each meeting of each team were used to illustrate how the roles interacted during the research and development work of the teams. Specifically, they provided evidence as to how decisions were made and who took leadership roles at different points in the process. The recordings provided an accurate account of who spoke with whom about which topics at team meetings.

The majority of team meetings was monitored for each site. The number of team meetings per team varied considerably as did the pace of the work from research problem identification through development activities. Two of the teams generally proceeded at approximately the same pace on a fairly consistent timeline. The third team, although parallel with the other two during the research problem identification phase, proceeded at a very different pace through the remainder of the process.

Each team met more frequently during the problem identification and data analysis phases of the research process. The SD* team and TC team often met weekly during these phases. The IA team met only bi-monthly during the same phases.

Because the teams continued to meet beyond the project timeline and after the analysis and reporting of the study were underway it became impossible to monitor and code all team talk. Therefore, the data analyzed include 76 hours of monitoring for the SD team, 64 hours of monitoring for the TC team, and 30 hours of monitoring for the IA team.

The monitoring of team meetings included several processes. The recordings were listened to and transcribed, with notes made in summary in all instances. The persons who engaged in the talk were identified. These transcriptions were coded according to the following categories as described in the IR&DT Final Report (Tikunoff, Ward, and Griffin, Note 1):

> Talk related to the various steps in the research process, (i.e., (1) identification of issue to be studies, (2) selection of research strategies, (3) determination of the nature of the data to be collected, (4) selection of data collection procedures, (5) preparation of the research design, (6), collection of data, (7) analysis of data, (8) development and reporting of conclusions);
>
> Talk related to development, conduct, and report of the team's development efforts;
>
> Other talk, e.g., personal and professional supportive talk, personal irrelevant talk, professional irrelevant talk, professional development talk directly related to research other than IR&DS. Talk related project management and other activities involving the IR&DS staff, development talk unrelated to IR&DS.

The transcripts of the meetings were then coded, using the topical categories above. Each topic of discussion was given a letter or numeral indicating its nature and for each topic it was determined who engaged in the

*TC = Teacher Center; SD = School District: IA = Intermediate Agency

discussion of that topic. The frequencies of talk segments were converted to percentage scores. The discussion of the interactive process is therefore based on percentages of total talk segments of the teams related to topical categories according to the respective team member. (It should be noted that these percentages refer to topics rather than the amount of time devoted to them.)

Beyond determining the frequency of talk about research and development, a further analysis was made using Weller's observational system MOSAICS. The transcriptions of selected meetings, four for each team, Year One and four for each time, Year Two for a total of 24 meetings were subjected to this analysis.

2. Participant logs. Because interactive research and development is a complex process, it was considered desirable to ask participants to record their involvement with project work in several ways. Self-report is one. The participants were asked to record their reactions to, feelings about, and perceptions of team meetings and other events related to the IR&D process.

3. Personal contact report. This self-report form was intended to capture the patterns of the complex and highly dynamic communication system which develops in an interactive process involving multiple institutions and participants in each site from various levels of each organizational hierarchy. The IR&DS study team could not be present to record these myriad transactions as they occurred. Therefore, participants were asked to record their contacts with others concerning any aspect of the IR&DS effort. The principal investigators and the project director also recorded all personal contacts, telephone conversations and written communications with the participants. The report form called for a description of the substance of the contact, listing of person(s) contacted, and reactions to the contact.

4. Problem identification questionnaire. Prior to the initiation of IR&DS activities, participants were asked to list five problems facing teachers (and teaching) and to indicate the percentage of role-alike colleagues that they believed would agree with them regarding each issue. The same instrument was administered at the completion of the IR&DS effort to determine any change in the views of participants.

5. Baseline interview. After sites and participants were identified and selected, each team member was interviewed regarding personal data, previous research experience, general impressions of educational research, and expectations concerning participation in the project.

6. Final interview. An interview at the completion of the project was conducted with each participant and each chief site administrator. Issues in the interview included: (a) problems encountered by the participants, (b) strengths and weaknesses of the strategy, (c) adjustments made by individuals and institutions to carry out the IR&DS strategy, (d) attitude toward educational research, (e) suggested changes in the application of the IR&DS strategy, and (f) changes in participants' professional plans due to involvement in IR&DS.

7. Orientation questionnaire. A two day orientation was conducted for all three teams at a conference center conveniently located to all three sites. The purpose of the orientation was to introduce the interactive research and development process. All team members attended the orientation. The roles and responsibilities of team members as well as those of the principal investigators, project director and research assistant were discussed. Other information presented included features of interactive R&D and steps of the research process. At the conclusion of the orientation participants were asked to complete a questionnaire concerning their level of

satisfaction with the experience, what they expected their roles on the team would be, and to speculate on the possible benefits participation in IR&DS would result in for themselves and their sites.

R&D Outcomes

The outcomes of the research at each were judged in relation to (a) the extent to which the requirements of rigorous, scientific inquiry were met, (b) the contribution of the research to new knowledge about the phenomenon under study, and (c) the applicability (usefulness) of this knowledge to school and teaching settings. The development outcomes were reviewed in terms of (a) development programs/processes that utilized the research findings and methodologies, (b) learning processes/activities there were designed/ redesigned to incorporate research findings, and (c) the applicability of the development activities to other organizational settings. To obtain expert opinion regarding the research and development outcomes resulting from the three IR&DS teams' efforts, nine persons were asked to rate the research and development products using a scale of 32 items and one open-ended question. Test-retest reliability of this scale was documented in the IR&DT Final Report.

Development Outcomes for Participants

It was recognized from the IR&DT Study that the interactive research and development process can serve as a powerful tool for participants' personal and professional development.

This study also sought to investigate changes in people and institutions related to participation in interactive research and development. The logs and recordings of team meetings contained information that suggested changes in participants and institutions. The baseline interview also provided information that was helpful in determining what and how changes may have

occurred. In addition, the recordings of selected team meetings were subjected to a further analysis to determine behaviors of participants over the course of the 24 months of the project. This additional analysis of the recordings was included to explore in more detail than was so for IR&DT the potential of the strategy for participant change.

Three data sources used in IR&DT were employed in this study to contribute to the data base concerning participant change. They are the Professional Development Questionnaire, the Research, teaching, development skills and knowledge self-perception questionnaire, and the Final Interview. The final report includes the data obtained from all these sources.

National Advisory Panel

An advisory panel composed of five individuals knowledgeable about a variety of issues related to schooling, staff development, and interactive research and development were invited to participate in the IR&D process over the 22 month period. Two of these individuals had served as principal investigators of the IR&DT project. The panel members reviewed the teams' research and development designs.

The panel brought not only expertise but objectivity to the IR&DS process in which the teams were engaged. Their various perspectives on schooling and research and development made the feedback to the teams regularly provided by the principal investigators especially beneficial.

Advice to the IR&DT staff. The advice of the panel members was sought informally by the principal investigators and project staff. There were no formal papers produced by the project staff which were circulated for their review. However, ideas and ways of approaching a problem were discussed informally with one or two panel members at different times. This mode of communication was useful and cost-effective.

The research and development designs were forwarded to advisory panel members with the request that they respond in writing. The written critiques were then compiled. All recommendations and/or critiques were communicated to team members, sometimes paraphrased and always anonymously, with the understanding that they need not be mandates for revision but that some response was required for each comment offered.

CHAPTER 3

Organizational Contexts

One of the central foci of this study was to examine differences in contexts and to document the extent to which these contexts affected the process and the product of interactive research. One guiding thesis was that context is a dominant feature and that that dominance would have effects on IR&DS. In interactive research both the macro-context (the larger institutional setting) and the micro-context (the team itself) interact. Therefore we must understand context differences before we describe the process of implementation.

The Sites

Three elementary schools located in a suburban community, a consortium of teacher centers of a large urban school system, and two secondary schools located in a regional cooperative education center served as the three contexts within which IR&DS teams carried on the R&D process. A university college of education served as the home base for two of the researchers, the project director and one of the principal investigators.

The self-contained school district site (SD). A team of four teachers, a developer and researcher made up the team in this school district located in the New York City suburban area. (During the initial months of implementation, the SD team also included a consultant who had worked with school staff on children's writing.) The total number of residents of the district numbers about 20,000. Most of the residents are employed in technical, managerial or professional occupations. In recent years both foreign diplomats and businessmen have moved into the district. In the school system there are four central office personnel along with seven principals who make up the Administrative Council. It should be noted that the developer for

the team was in this decision making group and is one of the four central office people.

The district has a long history of involvement in innovative programs, numerous staff development projects and an active collaborative mode of work among parents, teachers and administrators.

There was agreement with the district that it would support the team both through provision of the researcher and developer and substitute days for teacher team members. Ten days for each teacher were agreed upon. Secretarial assistance, a meeting place and equipment for the team were also to be provided.

One of the principal investigators met with a group of interested staff members and the Assistant Superintendent for Curriculum and Instruction. Volunteers were sought from the staff to participate as team members. The volunteers were members of an existing teacher committee on children's writing.

The Teacher Center consortium site (TC). The five teachers from the teacher center consortium team were known as teacher specialists on the Teacher Center Project. The developer was a doctoral candidate, while the researcher was a Teachers College professor. The consortium was a collaboration between the United Federation of Teachers and a large urban Board of Education and institutions of higher education. The consortium served 70,000 teachers and was supervised by the Teacher Center Policy Board composed of teachers and representatives from the Board of Education and the region's colleges and universities.

In the seven sites where there were Teacher Centers, the specialists acted as models, facilitators, change agents, organizers and stimulators. Before the consortium, these specialists were teachers. Now they were in a

position of facilitating the staff development of fellow teachers. Their purposes were to study professional development so they could aid in maximizing teacher potential.

One of the principal investigators made contact with the director of the teacher center consortium. The project was announced and volunteers were sought from the group to create the team. Support in terms of meeting place, secretarial service and time to participate were agreed upon.

The Intermediate Agency site (IA). The Intermediate Agency teachers and developers were all members of the staff of an occupational education secondary school in New York State. The researcher was a Teachers College professor. (Intermediate Agency is the embodiment of shared planning, shared services and shared programs in New York State. The basic ideas of Intermediate Agency have been supported by an act of the legislature that has enabled small districts to combine resources that would have been unavailable to single districts. Intermediate Agency provides services for special education and occupational education. Students of occupational skills spend half their school day in Intermediate Agency and half at their home school. The diversity of vocational offerings stems from local and regional manpower needs; content areas extend from agriculture to health education.)

In order to understand these three sites in more detail we described several variables that needed to be considered in the three sites. The three sites were chosen, in part, because they represented differences in governance, complexity and size. Our study concerned itself with how the context differences might affect the interactive strategy.

Still another significant part of the description of the contexts was how each one stood in relation to the essential features of the IR&DS strategy. As described earlier, the essential features were:

1. R&D team composition
2. nature of collaboration
3. problem solving focus
4. conducting concurrent R and D
5. maintaining the integrity of the classroom

Although these essential features represented an ideal, it was felt that they would be manifest in some way in each site by each team. The principal investigators believed that the features would probably vary depending on the setting.

In summary, we have described selected differences in the contexts within which the IR&DS implementation took place. In some instances, such as urban and suburban sites and differences in organizational complexity, the differences were planned from the start. Setting up the teams with different role functions being enacted by different people was also planned (e.g., graduate student as developer, Assistant Superintendent as developer). It was also planned to include contexts where other people in educational organizations might participate in the interactive strategy (e.g., the Intermediate Agency, and the Teacher Center site). Also planned was a site that included the teacher organization as the major force behind the site in comparison to the more typical school organization. Unplanned variations included the particular participants who volunteered or were chosen for the teams, the differences in professional experiences, the different supports, and the different personal and professional goals that changed over time. To understand both the planned and unplanned variations we turn next to the implementation of IR&DS in the three sites.

CHAPTER 4

IR&DS Implementation: The Process

This chapter presents the findings regarding the degree to which the school district team, the teacher center team and the intermediate agency team demonstrated the essential features of IR&DS as they proceeded through the R&D steps of the interactive process. The technical assistance provided to the teams by the principal investigators and the IR&DS project staff will be described as well.

Orientation to IR&DS

A two day orientation for all three teams was held prior to the beginning of the implementation period. The orientation session was the first opportunity participants at the three sites had to learn about the interactive research and development process. The baseline interview was conducted with all participants prior to the orientation.

The orientation was planned with the learnings in mind from IR&DT. In particular, IR&DT made the IR&DS principal investigators more sensitive to the differences between university researchers and teachers. It was therefore decided not to burden the participants with the in-depth presentation of a variety of research modes. The orientation included:

1. Self-introduction of all participants,
2. Introduction of principal investigators and IR&DS staff,
3. A discussion of the roles and responsibilities of staff members,
4. Discussion of the rationale for IR&DS,
5. Presentation of IR&DS participant's input for implementation study,
6. Discussion of the eight steps usually carried out in a research study,
7. Completion of questionnaires by participants,

8. Preliminary discussion of issues of interest to participants,
9. Team meeting to begin the process of identifying a question/problem for IR&DS research.

At the close of the orientation, team members were asked to respond to an open-ended questionnaire which focused on the orientation activities. Their responses indicated that they were satisfied with the orientation procedures and enthusiastic about the project. The groups were comfortable with the notion of working as a team. They were pleased with the results of their first team meeting which occurred at the orientation. The concern of the participants included the paperwork in the evaluation/study procedures and the time required to meet and conduct their work.

Team Member Interactions

The membership of each IR&DS team was designed to include a wide variety of perspectives on schooling. The teams included 4-6 teachers, one researcher and one developer. It was generally assumed that teachers might defer to a researcher and/or developer in team discussions due to the perceived higher status of these individuals. Therefore team membership was designed to include only one individual for each of the roles of researcher and developer. The degree to which team members, regardless of professional role, were each able to command the attention of the team to which they belonged is referred to in this report as parity. An essential feature of IR&DS is parity in decision making.

Team Meetings: Process Analysis

Eighty-three hours of team talk were monitored for the SD team. In examining this talk there appears to be variation among teachers in the ability to gain the attention of the group as measured by who engaged in the talk segments that were monitored. This was due to the fact that several

teachers assumed a more active role at certain points in the process. The researcher and the consultant, both more knowledgeable than the teachers in research methodology, maintained equal or less participation with the teachers over the length of the project. From the data, it can be concluded that members achieved parity in the team meetings.

Sixty-nine hours of talk were monitored for the TC team. In examining the talk it appears that the teachers gained the attention of the group with fairly equal frequency. The small differences that occurred between the teachers are not considered to be significant or important in terms of parity.

The developer commanded the attention of the team slightly more frequently than the teachers. The principal differences in terms of participation occurred with the researcher's contribution. The researcher had more knowledge of research methodology than any other team member. Because of this, all team members were active participants with the researcher somewhat more active than the teacher.

The IA team conducted 37 hours of meeting time. The teachers' participation in team meetings was approximately equal with one exception. It appeared that one teacher commanded the floor twice as frequently as the others. The researcher and developer each contributed and participated in more team discussion topics than any of the teacher team members.

In reviewing each team in terms of overall parity of participation in the team meetings, it can be concluded that:

1. Teachers on all three teams gained teammates' attention,
2. One teacher on the SD team gained teammates' attention more frequently than all other teachers.
3. The researchers on the TC and IA teams participated more than any other role member on each of those two teams,

4. When the teacher role was considered as a composite it accounted for more than half the team talk during the formal meetings that were analyzed,
5. The SD team researcher's level of participation which approximated that of the team teachers was due to a consultant serving the function of research in year one.

Parity of Team Members in Relation to the Research Steps

This section focuses on the degree of team members' participation in discussions related to the eight research steps. Parity in discussion was of interest to IR&DS project staff throughout the project period. However, parity in discussion of the research steps was of greatest concern to the investigators.

Teacher team member participation in discussions related to the identification of an issue or question for study was a critical part of the IR&DS study. Underlying this endeavor was the belief that if teachers participated extensively in the discussions concerning problems, the research to be conducted would be more reflective of real school issues and problems than traditional research to date. Generally, teacher participation by individuals was about the same for the total implementation effort with one exception. The consultant, however, participated twice as frequently as any other individual team member in this phase of the research steps.

An examination of participation according to role shows that teacher participation was three times greater than either researcher or developer and almost twice as great as that of the consultant. Teachers as a role group were responsible for 45 percent of the coded segments of team talk related to research question identification.

An examination of participation in discussion related to identification of the research question by the TC team, shows that two teachers contributed twice as frequently as the other team teachers. This is in contrast to the SD team where individual teacher participation was fairly equal. The researcher contributed most frequently to discussions of research question identification. The researcher's participation in this phase is similar to total participation over the entire implementation period.

To determine which role group participated most in the research question identification phase, the TC team members' participation levels were combined according to role as were those of the SD team members. The teacher team members contributed twice as frequently as the researcher and three times as frequently as the developer to research question identification. The degree of participation in discussion related to identification of the research question by the IA team members was also examined. The teacher team members and the developer participated at levels similar to those of their participation during the entire implementation period. The researcher, however, participated at a slightly lower level during this phase of the research steps as compared to his participation during the entire implementation period. Participation by role group shows that teachers were responsible for twice the participation level of the developer and three times that of the researcher.

There was relative equality of teachers and developer on the TC team in holding the attention of the group in all meetings, from identification of research questions through development of conclusions.

The TC team researcher's higher level of participation in all research steps combined is similar to her higher level of participation during identification of the research question. However, the teacher role group, if

viewed as a composite, would show a higher level of participation than for the individuals holding the researcher and developer roles.

An examination of the participation of the individual members of the IA team throughout all the research steps shows that the researcher participated more actively than any other team member and twice as often as any teacher team member. The second most active team member was the developer.

Regarding parity of team members in relation to the entire IR&DS effort, it can be said that:

1. Particular teachers on the SD and IA teams participated at a higher level than other teachers on the team in team discussions,
2. The developer on the SD team participated at a lower level than the teachers in team discussions,
3. The developers on the TC and IA teams participated at a level similar to the teachers.

The Nature of Interaction in Relation to the Research Steps, Development Activities and Non-Research Issues

Thus far, this discussion has described parity of participation in the IR&DS implementation. Teachers as a role group participated at a high level in team discussions, although researchers as individuals and the researcher and consultant combined on the SD team participated at higher levels than other team members.

A further analysis of the nature of team member participation was included as part of this study. As in the IR&DT study, the talk segments from the audio-recordings of the team meetings were coded to indicate talk related to the research steps, talk related to non-research issues excluding development, and non-research talk that focused on development of the teacher training aspects of the team's work.

Research Related Talk:

Step 1: Identification of issues (questions) to be studied.

Step 2: Selection of research strategies.

Step 3: Nature of data to be collected.

Step 4: Data collection procedures.

Step 5: Preparation of research design.

Step 6: Data collection.

Step 7: Data analysis.

Step 8: Development of conclusions to be reported.

Non-Research Related

A. Personal and professional supportive behavior.

B. Non-professional irrelevant talk.

C1. Professional irrelevant talk.

C2. Professional talk related to other research projects.

D1. Team group process talk.

D2. Talk related to roles of team members and composition of the team.

E1. Setting process talk.

E2. Talk related to team's involvement with IR&DS study.

Non-Research Related (Development)

G1. Development/training talk.

G2. Development/training talk not related to IR&DS.

H. Questions and answers regarding the research/development process.

Talk segments frequently included multiple categories. A team member might be discussing a data collection procedure which would be coded 4 while at the same time referring to team process which would be coded D. Since

conversation included segments where several codes applied, it is not possible to compare the number of instances an individual spoke and the number of instances within categories reported here.

Overall, the greatest number of coded talk segments for the SD team were research related and had to do with developing data collection procedures. The next most numerous talk segments were team group process and data collection. Irrelevant talk was infrequent. Talk about development occurred towards the close of the project and was continued after the coding of meeting audio-tapes was stopped.

The greatest number of talk segments for the TC team were related to group process. The categories which included the next most numerous talk segments were data collection procedures, data analysis and IR&DS development/training talk. This team faced logistical problems concerning the meeting time and place at almost every meeting. Often these issues kept them off-task. When focused, their energy was devoted to three of the most critical phases of the R&D process.

Data collection procedures commanded the most attention for the IA team, similar to the other two teams. However, beyond that category five others demanded the attention of the team at similar levels. As with the SD team, talk concerning development occurred late in the project and continued beyond the period of regular team meetings.

In sum, it can be said that:

1. Each of the teams devoted more time to other research or non-research steps than to problem identification,
2. The SD and IA teams devoted the greatest attention to data collection procedures, the TC team to group procedures,

3. The TC team devoted twice as much attention to group process as the IA team,
4. The TC team devoted the greatest attention to IR&DS development matters,
5. The IA team had the highest incidence of irrelevant talk,
6. All three teams devoted the least attention to the final research step, development of conclusions to be reported,
7. The TC team devoted ten times more attention to data analysis than the other two teams,
8. The SD team devoted the greatest attention to actual data collection.

Sequence of Attention to R&D Activities

Because it was a general overall impression that the teams differed in the ways they progressed through the research and development activities, it was decided to examine the sequence of attention to research and development activities. Percentages of coded talk were completed for each meeting devoted to the eight steps, development activities and other talk.

The data show that the SD team proceeded sequentially through the eight research steps. Although development was referred to periodically from the early discussions of problems identification, no real attention was given to it until data collection was completed. The team members did, however, share their research progress with various groups from the very start of the project. This was part of their development activities. The team, however, couldn't conceive of how to work with other teachers concerning the substance of their research until they had experienced data collection themselves.

The teacher center teams proceeded in an even more systematic, sequential manner through the eight research steps. The formulation of a question was treated consistently in meetings one through four. This team had identified

the issue they wished to study at the orientation session where the first team meeting was held. They remained on task through meeting four by which point their question was focused. The team consistently discussed development ideas from the first meeting. In fact, the subject of development was discussed to some extent in all but four of their 21 team meetings that were monitored.

The IA team conducted far fewer team meetings than the other two teams. However, many of their meetings were half or full day meetings. More team meetings were conducted in year one than year two when the interventions were tested. At the close of Year Two the team did not meet as a group. Much of their final work was conducted individually or in pairs and therefore was not recorded. Overall, there are less data available concerning their sequence of attention to R&D activities than for the other two teams. The IA team proceeded sequentially through the research steps. Only in meeting 10 was there evidence of a return to task concerning problem identification. This resulted from feedback from the principal investigators concerning their research design. In general, this team did devote large segments of their meeting time to professional and non-professional irrelevant talk. Often meetings were conducted with lunch and coffee breaks.

Very little meeting time was devoted to development concerns. The team's development plan was not written until the final weeks of the project. Yet it was clear that development activities had occurred and that their plan included events in the distant future. These appear to have been planned and conducted by one teacher participant with input from the team developer. As noted earlier, the team met infrequently in year two, and particularly the last six months of the project.

Overall, the three teams did engage in the steps of the research process in sequential order with only the teacher center team discussing, if not

acting, on development more concurrently with the research steps than the other two teams.

Role Contribution of IR&DS Team Members

One of the key interests guiding this project was the desire to determine how the roles of teacher, researcher, and developer are enacted in the process. It was assumed that each role participant would bring special expertise to this R&D effort and to determine how that expertise was used within the team structure to inform the task at hand. A further analysis of the recorded meetings was conducted. Talk segments from the formal team meetings were coded to determine role contributions to the R&D and their frequency of occurrence on each team.

The frequency of behaviors defined by team role during the identification of the question/problem was examined. Teachers on the TC team suggested an issue twice as often as teachers on the other two teams. The researchers' contributions to the problem identification phase are similar concerning the suggestion of an issue. However, the researcher on the TC team questioned the issue and refined the issue much more frequently than the other two researchers. Both the TC and IA team researchers monitored attention to the issue while the SD researcher did little of this. The developer on the TC team was active in helping the team refine the issue.

The SD team consultant (acting as team researcher during the early stage of implementation) suggested an issue more frequently than the other team members and was active in refining the issue. She also suggested and prepared a procedure for gathering data to identify the issue more often than any other team role. She reviewed the literature related to the topic under consideration much more frequently than the three team researchers.

The extent to which team members performed the designated role functions while engaging in selection of research strategies was also examined. This research step was given little attention by the teams. Only the SD team devoted attention somewhat to the consideration of various strategies.

The TC team teachers were very active in suggesting types of data to be collected. The problem the team selected for study created a large number of possible data sources to be considered. The IA team researcher and developer were active in suggesting data related to the issue to be studied. The SD and TC team teachers were very active during selection of data collection procedures. The IA team teachers however did not actively engage in these same activities. The developer on the IA team was very active in suggesting data collection procedures.

Concerning preparation of the research design, the teachers on the SD team wrote the research design for their team. They actively engaged in all aspects of the preparation of the design. The teachers on the TC team contributed to the written document their team produced and in general were less active in the preparation of the design than the SD teachers. The IA teachers were least active in design preparation.

During data collection, both the SD and TC team teachers were very active in conducting and monitoring data collection. This is in sharp contrast to the teachers of the IA team who were less involved with data collection. The SD team researcher who was a teacher and the TC researcher were active in data collection. Only the SD team developer was not active in data collection. Both TC teachers and SD teachers participated in the early phases of data analysis. No member of the IA team made any references to data analysis.

Development took many different forms and it occurred after the project timeline. The SD team conducted lunchtime meetings in schools. The TC team

was most active in this phase of the process, while the IA team had not discussed development plans at the point of the project writeup.

It was of interest to the principal investigators of this study to identify the frequency of professional irrelevant and non-professional irrelevant talk of the participants during team meetings. The teachers on the SD & IA teams engaged in professional irrelevant talk more frequently than teachers on the TC team. The SD team researcher engaged in professional irrelevant talk more frequently than the other researchers. As a teacher, he had common experiences in the district with the other team teachers.

Concerning non-professional irrelevant talk, teachers most frequently engaged in such talk. For the SD team teachers, a close group working in the same school district for years, the talk focused on family members and personal problems of team members. The TC team teachers generally discussed parking problems, lunch and other food arrangements. The IA team non-professional talk was too wide-ranging to categorize.

The MOSAICS Observational System and the Findings

The MOSAICS observational system was used to code the data on the team meeting discussions.

The TC team evidenced the most interactive discussion among all three principal participants--teachers, researchers, and developers. Moreover, unlike the other teams whose members' roles changed from year one to year two, the TC members maintained very consistent roles in the team meetings. In short, teacher participation in both years accounted for about two-thirds of the conversation, with the researcher and developer supplying the remainder.

The SD team discussions were also interactive: however, in year one the consultant played an especially dominant role. In year two, the teachers took over, assuming three-fourths of the conversation. The developer and the

consultant, it should be emphasized, were absent during year two. The teachers, in such a situation, emerged very dominant.

Finally, the IA team's discussions were dominated by the researcher and developer in both year one and year two. The teachers never did emerge to play anywhere near an interactive role; in fact, as time went by, they played a less active role. By marked contrast, the teachers in both the other two teams increased their roles in the second year. (As is true for the other aspects of this summary, a detailed description of the MOSAICS system can be found in Griffin, Lieberman, & Jacullo-Noto, Note 4).

Overall Conclusions Related to IR&DS Team Member Interaction

1. Teacher perspectives were dominant in the selection of the question/problem to be researched.
2. Teachers identified the questions which were eventually chosen for study by the teams.
3. Teachers continued to contribute heavily once the research question was agreed upon.
4. Teachers contributed the questions which were eventually chosen for study by both teams.
5. All three teams followed the research steps presented by the principal investigators in sequential order.
6. There is little evidence in the audio-recordings of the IA team that persons other than the researcher contributed heavily to the final written research design and final research and development report.
7. The SD team's final research and development report was written by the team teachers and researcher.
8. The TC team's final research and development report appeared to be influenced directly by all team members.

9. Teacher participation in the refinement of the written research design and final research and development report was high on the SD and TC teams and low on the IA team.
10. The development phase of IR&DS was delayed by all three teams until much of the research effort had been conducted.
11. The development effort of the TC team appeared to be influenced more directly by the team's research findings than the development work of the other two teams.
12. The roles of the teachers, researchers, and developers varied from team to team and year to year. On average, however, among three types of participants, the most dominant role is played by the researcher (or consultant when present); the second most dominant role is played by the teachers who outnumber the other members by about four to one, with the developer playing the least prominent role of all.
13. The TC team evidenced a consistently high quality of interactive discussion on the part of all the members in year one as well as year two. Neither the researcher nor the developer in this team overly dominated the discussion, and the teachers played a very active part.
14. The presence of the consultant in year one of the SD team's discussion appears to have curtailed the participation of the other members, particularly the researcher and teacher.
15. The absence of both consultant and developer and year two of the SD team's discussion appears to have markedly increased the involvement of the teachers in particular.

16. The discussion of the IA team was considerably briefer than that of the other two teams. Additionally, the teachers spoke far less than the teachers in the other teams; and either the researcher or the developer dominated the conversation in both years' meetings.

Technical Assistance

The teams were presented with the possibility of receiving technical assistance from the IR&DS staff at the orientation program. Initially, it was expected that the teams would call on the staff with questions concerning a literature review, the selection of instruments for data collection or perhaps technical questions concerning data analysis procedures. This is the traditional conception of technical assistance provided from a project office based at IHE. As the project proceeded it became clear that this was not the form technical assistance was taking. There are several reasons for this occurrence. First, each team included an experienced researcher in its composition. As the team work proceeded, the researcher provided many answers to questions concerning research processes as they developed. Many of the requests that would have been directed to a project staff were therefore handled in this manner. In addition, team members were uncertain as to the kinds of requests for assistance that were legitimate. Often recordings of team meetings and logs would indicate this uncertainty. Team members also were uncertain as to what the response to request for assistance might be. It is believed that these factors encouraged the teacher participants to rely more on the expertise of the researcher on the team and on their own abilities. The frequency of occurrence of requests for assistance was less than anticipated and the nature of the requests was different as well.

The principal investigators initiated few technical assistance contacts with the teams. This is consistent with one of the intentions of this study

which was to investigate how sites could progress in a fairly independent manner with their R&D work. The type of assistance initiated by the project staff was consistent across the three teams. The assistance offered concerned the administration of the project, facilitating the writing of the research design and the development plan.

The most significant intervention by the principal investigators concerning the research design was the convening of a meeting of all three teams for the purpose of the team's sharing their work on problem identification and their research design. This meeting served to update the staff on team work at a crucial point in the process and to uncover any problems the teams were experiencing. The school district team openly shared the difficulties they were experiencing in the problem identification phase. This meeting provided the opportunity for the team to receive assistance not only from the principal investigators but also the members of the other two teams. This did occur. The principal investigators also responded in writing to each team, following the meeting.

The most significant instance of assistance offered by the principal investigators concerning the development plan was another meeting of all three teams. This meeting was scheduled for the fall of the second year as team meetings were beginning to focus more directly on development. The purpose of the meeting was to assist the teams with the transition from research to development. Although it had been hoped that R&D would occur concurrently, these activities occurred in more of a sequential manner instead. A teacher from one of the earlier IR&DT teams was invited to share with the three IR&DS teams her team's experience in creating development activities.

Summary

The findings concerning the implementation of the interactive R&D process at three sites were presented in this chapter. (Statistical data are available in Griffin, Lieberman, & Jacullo-Noto, Note 4).

The IR&DS requirements of parity and broad participation in team deliberations were met by the SD and TC teams more than the IA team.

The SD, TC and IA teams proceeded systematically through the research steps. The IA team, however, proceeded at a different pace. Generally, the project staff initiated more technical assistance contacts with the IA team than the other two teams. The differences in the way each team implemented the IR&DS strategy are evident in the preceding discussion. The impact of these differences on the R&D products will be discussed in the following chapters.

In addition, we conducted interviews and administered questionnaires about participant's research, development skills and their professional development interests. All meetings were transcribed and coded. Participants were also asked to keep personal logs of their own impressions of the project. These data allowed us to look at a variety of factors that appeared to influence the process and the product of the IR&D strategy.

In analyzing these data, we used themes from the school improvement literature and looked at each setting to see how these themes were made manifest. We then compared the sites to note similarities and differences.

Small Group Themes: The Interactive Team

We assumed that conflict would be apparent on all the teams. We were aware that in the formation of new settings that there would be high costs in terms of time, learning new roles and new skills and that the different teams would handle these costs in different ways.

Rewards were also a part of the building of the team. We reasoned that there had to be some payoff for the team members to engage in such a time consuming task. Initial expectations and readiness of the teams to engage as well as the differences in contexts gave us clues as to what these teams saw as rewarding in both the short and long term.

Leadership was another theme that we deemed important. Interactive research and development offers unique opportunities for the adoption of leadership roles. How the group handles the leadership function is made more complex in that no one is formally assigned the role of leader.

Match Between Context and IR&D is another factor that was examined. To what degree did these three different contexts reveal that their previous

experiences readied them for IR&D? Are there conditions necessary to sustaining the strategy?

Personal and Professional Expectations were seen as crucial to our understanding of how the teams actually went about their work. What was their world view of research and how did it get acted upon during the various phases of IR&D?

Time is a critical variable in every project where school people engage in activities above and beyond their regular job ones. If teachers are to become involved in "doing" research, creating new forms of development and new growth possibilities, where is the time to come from? How do the different contexts deal with this problem?

Support has been endorsed as a necessity in school improvement. Our concern was what this support looked like over time. Was it constant or did it erode? How self sufficient were the teams?

Personal and Professional Outcomes of participants changed throughout the two years of the project. Our intent was to document these differences as they could be understood within each team and its larger setting.

The School District Team

The school district team came to the IR&D project with great expectations to do research. The team consisted of four teachers, a consultant who had been working with the district on writing and the Assistant Superintendent for Instruction. The team was ready to do research. But when faced with the preparation of a research design, a particular research question and a particular methodology, the team experienced conflict. The consultant had a bias toward case study methodology. Some members wanted to focus on teachers, others on children. One wanted to do an experimental design. However, once the conflict was resolved the team forged ahead.

The leadership on this team was different during the two years. In the first year the consultant and the developer worked together as a leadership team. The consultant helped on the task and the developer facilitated all the procedural matters. The developer had great confidence in the consultant. The leadership was positive and supportive. At the end of the first year and into the second, neither the developer nor the consultant were consistently involved. One teacher, originally named as the researcher, helped the team while another teacher member took care of the procedures and, in addition, took responsibility for a share of the writing and systematizing of the team's contributions. The teachers alone collected and analyzed all the data, and wrote the entire final report.

The team was clear from the beginning about what they viewed as rewarding from the project. They wanted to be connected to the University. They wanted to do research. The superintendent was supportive of the project. He showed this by his appointment of the Assistant Superintendent as a team member. The group reported that they had all become researchers.

The match between IR&D and the school district setting was near perfect. The team was ready for research, there was already a working group and top level support and all parties saw the project as rewarding for both the district and the individuals.

Although the support for the project eroded during the second year, the teachers, rather than get discouraged, fought hard to sustain the project and finish it by themselves. This runs counter to much of the literature that consistent support is necessary. The participants began to gain knowledge and then strength to continue to learn about the research process. It should come as no surprise that they were frustrated about the amount of time it took to complete the process. The time came late at night as they were determined to

do a good job in spite of the 5 substitute days that were removed during the second year.

Impressive self-reported growth on their perception of research and development skills were manifest in our data.

In summary, the SD team began with high expectations. The district was supportive of their participation, but the support eroded in the second year. In spite of the erosion, the teachers completed the project and reported growth in all areas concerning research and development. Norms of hard work and doing well persisted throughout the project. Although there was conflict over what and how to do their research, once it was resolved the team did well. A major problem voiced by the team was time. But the team also reported that this was the finest professional experience of their career.

Teacher Center Team (TC)

The TC team included participants who had been teachers before they were selected to be teacher specialists. Their job was to provide and facilitate professional development for teachers. All of them were responsible for a full time Teacher Center. All worked in three geographically dispersed areas in a large urban area. In addition, the researcher was a University professor who held strong beliefs about teacher involvement in research and the developer was a doctoral student who had continuously worked with the specialists and who was knowledgeable about staff development.

Unlike the SD team, this team had no conflict over their research problem, but rather over a range of issues including group process, differing norms between university and public schools, the meaning of parity and collaboration and logistics. Conflict and confrontation had long been a part of the repertoire of the teacher specialists as they worked in a large

bureaucracy often insensitive to the complexity of schools and the work of teachers.

The team moved ahead in its study of positive teachers and what supported this positive behavior, but had continuous conflict over parity (the researcher and developer were paid for their time and the teachers were not), leadership (some viewed it as demonstrated by different people, while others viewed it as synonymous with power), and work norms (where to meet and when dominated the meetings). If there was a pattern to the way conflict was resolved, it was that tension was pushed to the background and work took precedence. Both the process and the product of interactive R&D was accomplished by this urban team.

Because there were competing definitions of parity and a great deal of tension on the team, leadership, too, became a problem. The pattern of leadership on this team was characterized by the researcher playing a dominant role with consistent support from the developer. Both researcher and developer believed in the "interactive" strategy. They both saw their roles as being facilitative. At different times during the two years, several teacher specialists performed leadership functions. They were very involved in all discussions and decisions. But the quiet, consistent leadership on this team came from the researcher. Although there was an underlying tension and mistrust of the leadership function, not necessarily the person, the work was accomplished.

In spite of the ubiquitous conflict on this team, the ideology of the TC and IR&D were very close in value and stance. IR&D is a way to engage teachers in a systematic problem solving strategy. One learns research by doing it, by working on problems of teacher or school concern, and by using the process or the product of the team's work to narrow the gap between

research and development. This team held strong values and commitment to the ideology of IR&D. To make it work legitimated the teacher specialist role. The strategy in many respects represented them.

In addition, the team was very committed to the research question which formed the basis of their work. (What are the factors that make teachers feel positive about their work? And how can these factors be supported?) The research question was one that grew out of the work of the teacher specialists and one that concerned them greatly. Much of the literature concerning "teacher burnout" the team felt, tore down the profession. So, the strategy itself, the research questions and the facilitative leadership formed the bedrock of this team's process and eventual product.

The reward for the TC team was that they would be "doing" research and this could only enhance their skills as teacher specialists. Their concerns were how to do research from the "teacher's perspective" which they thought would be different from "academic" research. The long term rewards came as they learned about research and turned it into development. In professional terms, the rewards were forthcoming from an important piece of work that has great continuity for the work of the organization in general, and for the work of the specialists in particular.

Additional data showed that this group felt much more confident of their abilities as researchers, developers and as teacher specialists after the two years of the project than they did at the beginning. Self reported changes by the team in all areas of research and development, curriculum, instruction, and communication were impressive on this team.

In summary, this team began with high expectations to do collaborative research. Conflict arose, not over the research problem but over a range of issues including logistics of meetings, parity and the group process itself.

Support (by the chief site administrator) was high at the beginning and the end of the project but appeared to sag in the middle of the project. Time was also a problem on this team owing to the fact that each Teacher Specialist was running a Teacher Center as well as being involved in this project. However, with all the strains of the group process and work overload, the ideology of the team members and the IR&D strategy, along with consistent interactive leadership from the researcher and developer provided powerful incentives for the team members. These factors along with the "ownership" and concern about the research question appeared to aid this team in carrying out the strategy and working collectively in both their research and development phases.

Intermediate Agency Team (IA)

This IA had as a central premise, cooperative institutional relations in that the two schools receive students from several different districts. The team consisted of four teachers from two separate campuses. Two teachers were counselors, one was a teacher of auto mechanics and one a teacher of cosmetology. The developer became principal of one of the schools shortly after the project began and the researcher was a university professor whose major interests were media and technology.

Unlike the two other teams where there was conflict over the research question and group process issues, this team conflicted over what appeared to be two irreconcilable orientations to IR&D. The researcher hoped that he would be able to produce a product that would meet the standards of conventional "scholarly research." The developer and teacher team members were consistently looking for solutions to their problems.

The quiet conflict was manifested throughout the project by the researcher being given total responsibility for designing the research project, the methodology and the analysis, writing the research design and, in

fact, organizing all the data collection with procedural help from the developer and the teachers. As the researcher was following the tenets of research, the team members looked to see whether the strategies being tried made a difference with the "disruptive child." (Their research was concerned with different strategies to deal with the disruptive child in the classroom.)

On this team we saw still another pattern of leadership that was different in both style and mode of work. It must be said at the outset that two conditions differed on this team than on the others. The teacher members had no experience with research and as the project moved forward the team took no responsibility for any of the research-related writing tasks. Secondly, unlike the other two researchers, the IA team researcher had a traditional view of what he would accept as research. He worked hard to make the team's research acceptable to his standards. The researcher was teacher and the team members often acted as students, sometimes eager to understand and sometimes reluctant. The pattern of leadership, with few exceptions, was that the researcher created the agenda, tried to get the team to participate and then after waiting a period of time, did the work himself. The developer aided the researcher by helping set the procedures, deal internally with the IA, set up meetings and generally facilitate for the team.

This team was action oriented. There was nothing in their past experience that gave them any referents for doing research, participating in it, or understanding its uses for them. Their orientation was as total to them as the researcher's was to him. They wanted solutions and he wanted systematic inquiry. It appeared that too few of the conditions for readiness were available to this team to do IR&D as designed. They had no previous experience with research, no knowledge of how to do it and when the realities of time, detail, and systematic study became apparent, their lack of

experience prevented full participation in the process. From the beginning the researcher had interests that were quite divergent from the other team members. He recognized this but it appears that the gap was too wide to accommodate.

From the beginning, this team was open to the IR&D experience even though they had not worked on research or development. Their orientation was clearly on the development side. They seemed to have a vague notion about IR&D but had a definite willingness to become engaged.

Although there was an impatience about the time it took to do the research, this team loyally came to meetings until the data collection phase where they became uninvolved.

In spite of the mismatch between context readiness and IR&D and between the researcher and the team, support for this project both from the administration and from the IHE were strong and consistent. (Support here meant not only time but funds to be spent on equipment.)

In terms of the personal and professional outcomes of this team, gains made tended to be R&D items as opposed to curriculum and instruction. Although the gap between the team's perception of the process and the researcher's perception remained throughout the project, growth occurred from beginning to end. The developer and other teachers stressed that the project had given them an entirely new approach to problem solving. They now appeared to have a greater sense of themselves and confidence that others could learn problem solving techniques as they had.

In summary, there was an unspoken conflict between the researcher and the team members as they had two irreconcilable orientations to the project. The team gained rewards by a new-found status for being in the project as well as a new sense of themselves in their own setting. The IR&D process and this

team seemed mismatched as they had too few of the readiness factors to undertake the project interactively. The researcher remained the leader throughout by his continuous control of the project. And although the team did participate in various phases of the project, he had to initiate as well as implement the research procedures. Commitment to the team waivered during the second year as there were fewer meetings and less direct involvement in the project. Once the interventions were underway, the researchers' concern was in collecting data, but the teachers' concern was how well it was working. Outcomes were different for the researcher and the team members. He learned about schools and was disappointed in the research product. They saw IR&D as a "unique growth opportunity for teachers."

Cross Site Similarities and Differences

Interestingly, we see many fewer similarities among the teams than differences, but the similarities reinforce what come to be at least some of the recurrent themes in the school improvement research. Similarities occurred in four areas:

1. Time - From the beginning to the end of the project, all team members complained about the amount of time the IR&D process took. On the one hand the team members complained about deadlines, but also said they needed them to keep going. There were equally dramatic statements about the inability of teachers to do this type of research matched with the enormous power of the strategy for teachers.
2. Commitment of Team Members - All teams spoke often about the unequal commitment of time and energy spent by other team members. People who were strongly committed wanted their peers to behave similarly. In spite of these periods of tension, stress, and lesser commitments

from some team members, all the teams ended with high commitment to the project.

3. Support - Across teams and across the two years, the chief site administrators were very supportive of the IR&D project and the team's work. However, all teams also had breakdowns in that support. Two of the teams were involved in another project closely allied to IR&D. It appeared that when deadlines for both projects came at the same time, the chief site administrators had to decide which project to support. And it should come as no surprise that the IR&D project which was an outside-sponsored intervention would be in second place. These tensions appear to be a part of any project that seriously involves its participants.

4. Professional Growth - Across teams, all teacher team members reported professional growth. From the SD and TC team members there were reports of unmatched growth opportunity for all. Both quantitative and qualitative data revealed the differences in the professional growth depending on all the factors discussed previously. For the SD team, the teachers reported that they had become researchers. For the TC team, they stressed pride in doing IR&D and the IA team reported a powerful understanding of a problem solving stance and the new skills of learning from one's peers.

The differences are more difficult to categorize because they involve an understanding of all the complexities of the differences in context to begin with, but also the myriad differences in both what the team members brought to the project, their growth along the way, their growing and sometimes waning commitments as the project took more of their time and energy. Although all of the teams had conflict, the conflict was over entirely different matters.

It ranged from conflict over the research problem, to conflict over group process, and to conflict over differences in orientation to IR&D.

Leadership was also different in style and pattern. On the SD team there were different leaders from year one to year two. On the TC team, although the researcher was consistently the leader with supportive help from the developer, there was a great deal of interactiveness built into the decision making process. On the IA team, the researcher was clearly leader. Although he worked for participation, it was sporadic and inconsistent. He then had to carry on much of the work of the team.

Although all of the sites had been chosen because members had participated in collaboration before, it became clear that IR&D collaboration was brand new to all the teams. The model calls for group participation and we observed that just being in a group does not make one knowledgeable nor experienced in active participation in collaboration. As mentioned before, each team worked this out in its own way.

The perception of growth in skills and knowledge for the SD team and the TC team was far greater than for the IA team. But all three teams reported growth. Major growth for the TC team shows up on items dealing with research skills, curriculum skills and a few on instructional skills. The SD team showed the most growth on research skills.

The understanding of the IR&D process also differed on all the teams. The SD team came with an expectation of learning to do research. They clearly perceived that they were researchers by the end of the project. The TC team wanted to do interactive research and development. Their initial as well as final expectations were that they wanted to both do and understand how one takes research and puts it into development. (Clearly, their roles made them committed to the entire process.) The IA team wanted to solve their problems

and ended with the perception that they had become problem solvers with a strategy.

Our quantitative and qualitative data show the critical importance of understanding the enormous power of the context within which IR&D takes place.

CHAPTER 6

Outcomes and Conclusions

This chapter presents outcomes of the study of IR&DS. The outcomes are organized according to a set of consequences which were observed during the course of IR&DS implementation in three markedly different contexts.

Outcomes

Knowledge of Research and Development

The content of the team meetings, i.e., the team members; talk, provides explicit evidence of the teams' knowledge of research and development. As can be anticipated, the knowledge of R&D, as originally proposed, was presented primarily as an alternate means of conducting inquiry and engaging in school improvement regarding teaching. In like fashion, IR&DS was conceptualized as a set of possibilities which could promote research and development in schools. Naturally, with R&D as foci, one would expect that participants would either enter the implementation process with necessary knowledge or demonstrate the acquisition of such knowledge during implementation.

For most IR&DS team participants, entry into the project was characterized by little knowledge of research and development and less admiration for what little was known. Entry and exit interviews, when compared, illustrate that most IR&DS participants believed that they had learned a great deal about R&D. The exceptions, logically, were the researchers on the teams who entered the project with considerable knowledge about research.

Ironically, the statement above regarding researchers was not so across the teams for the developers. That is, there appeared to be differential knowledge of development held by the developers. There is evidence from team meeting data that the developer on the TC team carried a broader view of what

development could be than either the SD or IA developer. As noted in the body of this report, the IA and SD developers were administrators in their settings whereas the TC developer was essentially a doctoral student (studying leadership and school improvement) and a free-lance person charged with "doing" school improvement as a consultant.

Practitioners' (teachers and teacher specialists) knowledge of development was not extensive, as evidence by self-reports in entry interviews and as discovered by analysis of team meetings. This group of team members had had the typical experiences with school-related development (e.g., workshops, inservice opportunities, graduate courses, etc.). Their views of these activities as they had experienced them ranged from negative to mildly positive.

As the IR&DS implementation proceeded, it became clear that the participants increased their knowledge bases regarding R&D. Naturally, the specific attention given to the research steps in the IR&DS orientation could be expected to result in this consequence. However, it was also apparent that the interactions of the practitioners with the researchers provided another source of information.

Regarding development, this set of activities was less evident in the formal team meetings than were activities related to research. This may be because the decisions and procedures associated with development are more familiar and, hence, need not be focused upon to the extent that research ones need attention to gain command over them.

There is, however, evidence that all three teams became more knowledgeable about development, particularly from the standpoint of unique and atypical ways of going about it. Perhaps the most dramatic outcome related to knowledge of development was the recognition by participants that

development can be process-oriented as well as product-oriented. That is, that teachers and other school persons need not be "given" the development but could be given opportunities to discover, through their own inquiry and professional activity, those processes which ultimately result in growth.

Skill in Planning and Implementing Research and Development

This report has discussed the research of three IR&DS teams from a distance, as it were. The teams' research has not received direct attention because of the emphases upon staff development possibilities of IR&DS in contrast to more conventional research and development emphasis. Examination of the reports, combined with analyses of audiotapes of meetings and self-reports by IR&DS participants upon entry and exit provide evidence that all team members developed research skills and, more importantly, used them. This, of course, was differentiated within and across teams.

As with the knowledge of R&D, the differentiation of skill was often role-related (i.e., researchers possessed more skill in research and developers in development). Also similar to the discussion above, the skill exhibited team by team demonstrated differences. The SD and TC teams provided ample evidence of skill demonstration related to research and development whereas the IA team's evidence resides significantly more in the researcher and developer roles than in others. This could be interpreted as another manifestation of the researcher's and developer's maintaining ownership of their role-related activities on that team or, alternately, it could be a demonstration of the orientations of other team members to these activities. We think it is a subtle blend of the two explanations. It is not possible to sort out the ingredients of this blend given the data available for analysis.

Awareness of School Phenomena

It is axiomatic that identifying and acting upon a perceived problem provides focus for work. Similarly, engaging in IR&DS appears to be related to participants' willingness and ability to more sharply target their work-related activities. What may not be so obvious is that the consequences of engagement in focusing extend beyond the immediate object of attention. We believe that this occurred in the IR&DS implementation.

Because one of the essential features of IR&DS is the requirement that R&D be problem-solution oriented, the team members were obligated to identify an issue in need of resolution. This focusing activity was manifested in very different ways by the three IR&DS teams.

The SD team also gained increased understanding of school phenomena as a system of interacting variables. The concern for children's writing was a focused inquiry but it was informed by sharpened understanding of student differences, teacher preferences, system rules and policies, parental expectations, and curricular demands.

The TC team, probably as a consequence of prior activities designed to promote professional growth of teachers, entered IR&DS with an expressed desire to understand why some teachers were victims of disillusionment, "burnout," or otherwise defeatist positions regarding teaching and learning. The IR&DS strategy engaged them in personal and ideological/methodological interactions as a means to narrow the field of their concern to manageable dimensions. The research-related necessity to pare away the layers of concern about a school problem (in contrast to general senses of malaise which often result in complaints but no solutions) provided team members with opportunities to continue to demonstrate concern over the issue but, also, to

think about that concern in such a manner that action upon it became a necessity.

The IA team entered the IR&DS implementation with what appeared to be a more generalized view of the process than the members of the other teams. The IA team members solved this dilemma ("What shall we study?"), as noted earlier in this report, by asking their colleagues to advise them regarding issues in need of resolution. Also, this survey was extended to students in the IA setting. Clearly, this process and its consequences increased in the team members' awareness of institutional problems and, if only inferentially, provided an agenda for both IR&DS and non-IR&ds efforts.

As suggested earlier, although IR&DS provides a systematic (and obligatory) focus for members' participation in the strategy, it also provides more implicit than explicit opportunities for participants to gain awareness of their workplaces. This awareness, we believe, is a positive consequence of IR&DS implementation.

Evidence of Teams' Research and Development Having Impact on School/District Environment

In general we can say that all of the teams' R&D had an impact on their school districts. However, we must then discuss the evidence in relation to the differences in context and positive professional development because the teams as both individuals and groups within different contexts all started in different places in regard to R&D. Therefore, their impact must be understood in terms of where they started and where they have moved as a result of the IR&D study.

On the SD team, the team members had been members of a writing committee whose responsibility was to work on district implementation of a new approach to writing. They were already seen as a district cadre on writing. During

the two years of the IR&D project, the team members not only made presentations to the school board, but also presented what they were doing to schools and groups outside the district. The staff development arm called the Teacher Institute now has a whole course on translating research into practice and there are several teachers who expect to do their own research as a consequence of the IR&DS study. Each school, in addition, is adapting some of the processes and implications from the teams' research into their own school agendas.

On the TC team, the teacher specialists were already expert in development. They were all aware of research and the difficulties of translating research that had practical applications. What they had never done was to do research of this nature and use, in their case, both the process and the product for development purposes. Their development strategy serves as powerful evidence that both the process of doing research and the knowledge gained from doing it were disseminatible. Thus, they incorporated both in their development phase.

The IA team had never done any research and had never been exposed to the products or the processes of research. They had stressed, from the beginning that staff development was always an expert coming in from the outside and most often ignored by the teachers. The impact of this team on the IA focused mainly on the fact that insiders, in this case the team members, could be responsible for conducting their own problem solving and could be used as peer staff developers. In this way, staff development would have relevance to everyone in the IA because the problems would be seen as universal and many teachers could learn to be developers. The research qua research for them was less important. What was important was the power and confidence they gained from trying out several interventions on a major problem of the teachers.

We cannot ignore the self report from the teacher members that the IR&D strategy had powerful effects on their own sense of professionalism and competence. We do not think it too speculative to say that in their respective contexts they will operate with a new set of skills and will probably have greater impact as a result.

Attention to Research and Development Steps

The teams approached IR&D with enthusiasm as a totally new experience that had great merit. Initially, they talked about development as needing to occur concurrently with each of the eight research steps. They understood this concept and attempted to make it a reality. They, however, soon realized that for them this goal was unattainable. As the teams struggled with each of the various research steps they became immersed in the task of that step. At times they even experienced difficulty in relating concurrent research steps with the earlier ones. Talk concerning development, which was initially present, in early discussions of identification of the research question, faded entirely when the teams began to discuss the nature of the data to be collected and data collection procedures. Of the three teams the TC team was the only one where a team member would periodically state that they needed to think about development. For these three teams R&D overlapped at the data collection and analysis stages.

Although each team proceeded through the R&D steps at its own pace, each followed the steps sequentially. The SD team devoted extensive time to the problem identification phase. The TC team experienced a shorter time period in the research question identification phase than the SD team. Both teams devoted extensive time blocks to establishing their data collection procedures. The IA team followed much the same pattern with a sequential movement through the eight research steps with extensive time blocks devoted

to data collection procedures. Each team developed procedures appropriate to the needs of their study using instruments they designed in most cases. In sum, it is clear that each team proceeded sequentially through the research steps with emphasis on the research question identification phase and even greater attention to the data collection procedures phase. Development occurred in an overlapping rather than sequential or concurrent manner with the eight research steps.

Role Contributions to Team Research and Development

One of the purposes of this study was to stretch the limits of traditional role taking, by deliberately varying who actually played the roles within the teams.

On the developer role. All three developers took on the roles of facilitating meeting times and places, keeping the teams aware of their development focus and generally supporting and contributing their knowledge of staff development when that part of the project was evident. From the beginning, all three also appeared to handle the interpersonal relations on the team. But the context (both external to the team as well as the internal context of the team) appeared to have effects on the developer role.

On the SD team, the developer was active in the first year. He played both a supportive and facilitative role on the team. This was in large part an extension of part of his role as Assistant Superintendent. But when the demands of time began to press on the team he became an administrator more than he was a team member. Furthermore he had to wear his administrative hat to withdraw support from the team as he cut five substitute days from the team in the second year. It would appear that a top level administrator may have irreconcilable role conflict due to other administrative duties. However, it may be that this case was idiosyncratic.

On the TC team a doctoral student played the role of the staff developer. She had worked with the TC group before in the capacity of a trainer. Although she was involved in some of the conflict on the team, her performance of the developer role appears to suggest that doctoral students can be very effective on a IR&D team. She, like the other developers, helped arrange meetings, facilitate the team's getting reports in on time, participated in the development and writing of the development plan and generally served as a spokesperson not only for the interactiveness of the team, but for the importance of development itself.

On the IA team, the developer was an Assistant Principal when the project began, but within the first few months became the principal. She facilitated the meetings of the team, was the liaison with the researcher, and communicated to the upper level administration about the project. She consistently kept the team together, saw that the equipment was at the right place at the right time and generally played the role of the master facilitator. We can only speculate that, under some conditions, a principal can use the IR&D strategy for his/her own staff development purposes as it not only is not conflictful with, but actually can be a powerful part of his/her work. In this case, the developer role served as an added piece of the new role of the principal and gave her additional strategies and status for working with her staff.

On the researcher role. In the IR&DT study a teacher educator and doctoral student had played the roles of researchers on the two teams. One of the researchers was a university person who saw himself as a teacher educator. In IR&DS we wanted to use teacher educators, once again, to see how and under what conditions the university researcher would work in different contexts. We also wanted to replicate the IR&DT team where the researcher came from the

school district. Again, we must refer to the different contexts to discuss the role contributions of the researcher.

On the SD team although one of the teachers was designated as the researcher largely because he had a Ph.D., a consultant to the district actually fulfilled the role during the first year of the project. The team decided to release much of their team money to the consultant for the year so that she could work for them. Consequently, during the period of problem identification and design of the study, she served as the researcher. A major strength of her participation was her strong belief that teachers should be involved in the research process and that they could produce information on some classroom phenomenon that no university researcher could. She felt strongly that teachers should be given the same kind of recognition that university people often receive. This ideology aided in the tremendous ownership this team felt abut their research and aided in the teachers' own leadership and sophistication that emerged during the second year.

On the TC team, a teacher educator with a broad range of research skills was the researcher. She, too, had a strong and consistent commitment to "interactive" research and the possibilities and capabilities of teachers to engage in the research and development process. Her leadership was evident for the duration of the project. She was very strong in her belief in the team concept and the fact that the whole team needed to be involved in all of the steps. She was knowledgeable in a variety of research methodologies as well. At an interim meeting held with the researchers on the project, it became evident that an important characteristic of the researcher was some experience in or knowledge of the research topic. For both the SD and the TC team the researchers were knowledgeable about the topics that the teams chose.

We would have to temper our statements here to note that it appears that three important characteristics of the researchers housed in the university are:

1. The researcher believes that teachers can do research.
2. The researcher believes in and provides for "interactiveness."
3. The researcher be knowledgeable about the area of the team's concern.

On the IA team the researcher was also from the university. Although he was very sympathetic to the team, his expectations for research and the team's expectations were entirely different. He also reported that he felt handicapped by the fact that he was not knowledgeable about the content of the team's research. Although the researcher on the IA team made repeated attempts to involve the teachers on this team in the research, in the final analysis the process was not interactive. This team had very little or no experience in or use for research. All these factors hindered the researcher and made him often a solo act, rather than an interactive partner.

On the teacher role. On both the SD and TC team, teachers and teacher specialists respectively played strong roles in the selection, design, data collection, analysis and writing of the report. Both teacher teams were heavily involved in actually doing the development, although on the SD team, the developer wrote the plan by himself. The entire TC team designed the development from both the process and the product of their research.

On both the SD and TC teams, at different times, several teachers fulfilled leadership functions. On the SD team during the second year one teacher called the meetings, set agendas and provided the impetus for both analysis and the writing of the report. Another teacher, who had initially been named researcher on the team consistently set high standards of work for the team. Teachers, at different times assumed leadership functions along the

way (e.g., clarifier, summarizer, synthesizer, etc.). During the development phase for the TC team all the teachers become leaders with their new sites.

On the IA team, although the teachers clearly learned a great deal about interventions and the possibility of alternative solutions to problems, they were dependent on the researcher's moves to keep the "interactive" process going. Their power and leadership came as a result of participating in an R&D project which they felt released them from their local context and gave them experiences in problem solving that were new to them. So, although on the team, they were relatively passive in their own settings outside the project. They became more outspoken and far more articulate as a result of the project. They appeared to have gained insight into the power of peer learning as a means to solving problems.

Appropriate Use of Technical Assistance

The three teams used the team researcher as their resource concerning research procedures and practices. The requests made to the project staff focused on administrative details for the most part. The staff played a facilitating role between the LEA and IHE during the duration of the project.

Although participants said they wanted more contact with the principal investigators, it was "contact" and not technical assistance that they sought. Pride in accomplishing their work "on their own" abounded at the completion of the team research and development reports.

Response to Participation in IR&DS

The final interview served as the primary data source concerning the participants' reactions to IR&DS. Logs served as a secondary data source. Teacher participants reported heightened self-esteem based on their newfound abilities to be involved with research. Most noted that they would participate in such an experience again. However, time commitments, they

felt, should have been explained more clearly. Teachers felt great sense of ownership in the research question identification phase, in particular. In all cases, teachers said that released time and other supports from their sites are essential for teachers to participate in such projects.

The researchers reported greater sensitivity to the demands on teachers. These researchers noted the differences, however, between the nature of this type of research and development and more traditional research. The latter often requires less time and energy and leads more directly to publications, which is still believed to be the criteria for tenure and promotion at the IHE. These considerations caused two researchers from the IHE to hesitate to say they would engage in another interactive research and development project.

Developers were enthusiastic about the impact of the strategy on teacher professional development. They listed multiple alterations in teacher attitude and behavior as a result of participation in IR&DS. The two administrators filling developer roles agreed that the demands on their time due to IR&DS further burdened them in already high-demand jobs in their school districts. In one instance, a developer noted this could have been eased with a more careful meshing of district priorities with the IR&DS project. In all instances the positive effects of the interactive R&D strategy outweighed any negative effects mentioned by participants.

This report has described data collected from Interactive Research and Development teams in three sites in New York. Context differences as well as differences in the process of carrying out IR&DS were described. We have tried not to minimize the complexity of the process or exaggerate the ease with which the strategy is carried out. We believe that the strategy has tremendous power as a staff development tool and needs to be adapted in numerous contexts. There are guidelines, essential conditions and now well

over a dozen teams that have adapted the idea. In these times of aging faculties and changing school conditions, IR&DS has an important place among the models of staff development.

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